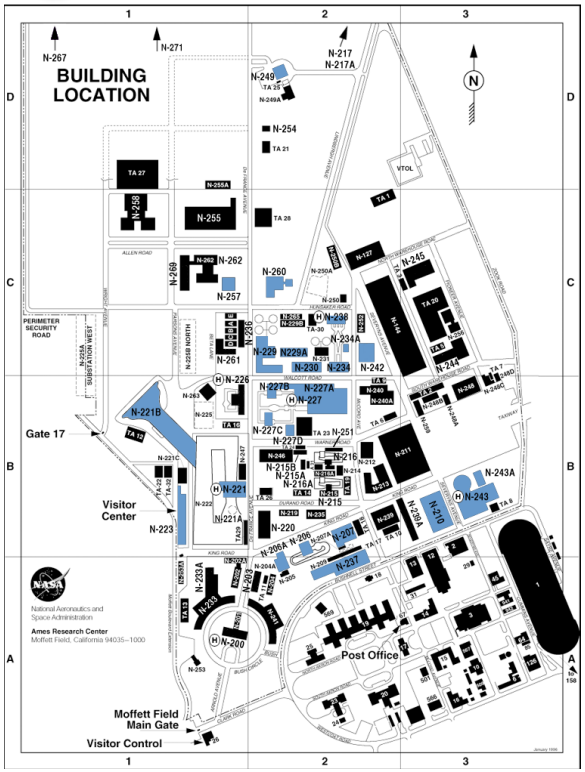
NASA Ames Research Center
Self-Guided Tour of Primary Facilities

Ames Research Center,
located at the south end of the San Francisco Bay

Historic Preservation Office
Fall 2009

The Ames campus is a secure federal facility that is not open to the general public. Only individuals already possessing appropriate authorization may tour the campus in person.

A Facilities in Code A: Office of the Director of Aerospace



Space Technology, N-204A

This facility conducts research and development (R&D) on arc jets and thermal protection systems that enable hypervelocity flight in planetary atmospheres. Such R&D was essential for the Apollo, Shuttle, and Galileo Probe vehicles. Advances in thermal protection also support the ongoing exploration of Mars and the outer planets, as well as the development of reusable launch vehicles (e.g., the X-33 experimental aircraft). Also under development is aerobraking and advanced regenerative life support technology to permit human exploration of Mars without the need for new, larger launch vehicles.

Other R&D at this facility includes sensor development, particularly in the infrared, and the application of Information Technology (IT) in intelligent systems, integrated design systems, computational fluid dynamics, and nanotechnology for electronics.

Flight Systems Research Laboratory, N-210

The Flight Systems Research Laboratory contains offices and computer laboratories for developing air traffic management automation tools and rotorcraft flight performance analysis software. The computer labs contain high-performance computer workstations in systems furniture to provide an interactive environment for software development and scientific analysis. At the north end of the building there is a high bay that is used for storage. The work conducted in the Flight Systems Research Laboratory is the core of NASA's contribution to the fields of airspace operations.

Electric Arc Shock Tube East, N-229

The Electric Arc Shock Tube is used for basic science research on flow phenomena at hypervelocity speeds. The electric arc–driven shock tube facility consists of one driver system and two parallel-driven tubes. The driver can be operated in a variety of configurations depending on test requirements. The energy to the driver is supplied by a capacitor energy storage system consisting of 220 capacitors. By using different combinations of series-parallel connections, the capacitance of the bank can be varied. This facility contains two large (5,500-horsepower) reciprocating compressors, as well as all of the auxiliary equipment required to operate the compressors. Included in N-229 is the control room for distribution of high-pressure air across ARC, a mechanic shop, a switchgear room, a welding shop, and a boiler room.

Physical Sciences Research Laboratory, N-230

This facility houses the Photophysics, Materials Research, and ISP Sensor Development Laboratories.

The Photophysics Laboratory includes two laser-application laboratories for spectroscopic research and optical instrumentation development, a small supersonic wind tunnel facility for the demonstration of laser diagnostic techniques in

high-speed flows, and a large stratosphere-simulation vacuum chamber where laser diagnostic methods were developed for use during space shuttle flight. The lab's high-energy pulsed lasers include ultraviolet excimer gas lasers, multi-wavelength Nd:YAG (neodymium – yttrium, aluminum, and garnet) lasers, and tunable dye lasers.

Research at the Materials Research Laboratory includes an investigation of graphite-epoxy composites and metal matrix composites. The laboratory's hydraulic testing machines are used for mechanical experiments on composite materials used in aeronautic applications.

The ISP Sensor Development Laboratory supports the manufacture of heat flux gauges approximately 0.5 inch in diameter and 0.022 inch thick, used in the Arc Jet Facility, Building 234. To produce the gauges, screen-printed sensors are fired in a furnace to 1550º Celsius to eliminate organics and achieve a solid metal film. The laboratory is used for material inspections and calibration. The calibration process involves repeated temperature steps of up to 1100º Celsius.

Hypervelocity Free-Flight Facility, N-237

The Hypervelocity Free-Flight Facilities provide a unique suite of testing capabilities to study the aerodynamics of hypervelocity flight, atmospheric entry, and the response of materials to hypervelocity impact. The HFFF comprise two ballistic ranges: the Aerodynamic (HFFAF) and the Gun Development (HFFGDF).

The HFFAF is NASAs only Aeroballistic Range and consists of a model launching gun, a sabot separation tank/vacuum chamber, a test section with 16 orthogonal photo stations, a test cabin, and the largest combustion-driven shock tube in the United States. This multifaceted facility can be configured to perform shock tunnel testing, aeroballistic testing, counterflow aeroballistic testing, or hypervelocity impact testing. The 22.9-meter (75-ft) long test section can be filled with various gases to simulate flight in planetary atmospheres. The 40.6-cm (16-in) diameter shock tube is capable of producing high-enthalpy airflow at Mach 7. This flow may be used for fixed-model testing or as a counter-current to the gun-launched models for combined velocities up to 11 km/s (36,000 ft/sec).

The HFFGDF consists of a model launching gun, a sabot separation tank/vacuum chamber, a flight tube, and an impact chamber. This facility is primarily used to expand and enhance the performance characteristics of the model launching guns used in the HFFF. This range can also be used to perform hypervelocity impact studies to simulate micro-meteoroid and orbital debris impact.

Both ranges were constructed in 1964 and utilize an arsenal of light-gas and powder guns to accelerate particles that range in size from 3.2 to 25.4 mm (0.125 to 1 inch) in diameter to velocities ranging from 0.5 to 8.5 km/s (1,500 to 28,000 ft/s).

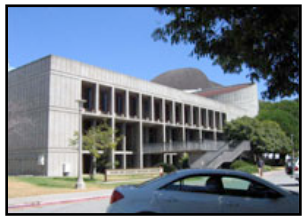
H Arc Jet Complex, N-238, N234, and N-234A

ARC currently operates a variety of arc-heated facilities within the Arc Jet Complex. These facilities are used to generate flow environments that simulate the aerothermal environment that an object experiences when traversing the atmosphere of a planet. They are used primarily to test heat shield materials and thermal protection system components for planetary entry vehicles, planetary probes, and hypersonic flight vehicles, although other investigative studies are performed in some of these facilities. In the arc jet facilities, thermal protection system components are exposed to the aerothermodynamic heating conditions that they will encounter during high-speed flight.

The facilities of the Arc Jet Complex are located in Buildings N234 and N238. The Aerodynamic Heating Facility and the Turbulent Flow Duct Facility are located in Building N234; the Panel Test Facility and the Interaction Heating Facility are located in Building N238; Building N234A houses the boiler for the Steam Vacuum System.

The arc jet facilities are serviced by common facility support equipment, including two direct-current power supplies, a steam-ejector vacuum system, a de-ionized water cooling system, high-pressure gas systems, a data acquisition system, and other auxiliary systems. The magnitude and capacity of these support systems is what primarily distinguishes the Arc Jet Complex as unique in the

aerospace testing world. In particular, the large power supply can deliver 75 megawatts for 30 minutes. High-power capability, in combination with the high-volume steam-ejector vacuum system, yields a unique suite of facilities that simulate high-altitude atmospheric flight on relatively large test objects.



H Flight and Guidance Simulation Laboratory, N-243 and N-243A

The Flight and Guidance Simulation Laboratory, with its 18.3-meter- (60-foot) vertical motion capability, is the world's largest motion-based simulator. The vertical motion simulator (VMS) was designed to provide large-amplitude motion to aid in the study of helicopter and vertical/short take-off and landing (V/STOL) issues specifically relating to research in controls, guidance, displays, automation, and handling qualities of existing or proposed aircraft. The VMS is also used to develop new techniques for flight simulation and to define the requirements and develop the technology for both training and research simulators.

Crew-Vehicle Systems Research Facility, N-257

The Crew-Vehicle Systems Research Facility, a unique national research resource, was designed for the study of human factors in aviation safety. This facility is used to analyze performance characteristics of flight crews, formulate principles and design criteria for future aviation environments, evaluate new and contemporary air traffic control procedures, and develop new training and simulation techniques required for the continued technical evolution of flight systems.

Fluid Mechanics Laboratory, N-260

An entirely new Computational Fluid Dynamics (CFD) method for predicting hover performance was developed in this facility. This computational fluid dynamics method is the first to predict the freely convecting wake system of a hovering rotor without any numerical dissipation errors. As a result, it is now possible to routinely analyze the hover characteristics of highly innovative rotor designs.

3.5-foot Hypersonic Wind Tunnel Auxiliaries, N-229A

This facility contains two large (5,500-horsepower) reciprocating compressors, as well as all of the auxiliary equipment required to operate the compressors. Included in N-229A is the control room for distribution of high-pressure air across ARC, a mechanic shop, a switchgear room, a welding shop, and a boiler room.

Research Facility, N-223

This facility supports materials development for thermal protection systems and plasma experiments.

Mars Unit, N-242

This facility supports testing in a small wind tunnel simulating surface conditions on Mars. It also houses production of thermal protection tiles primarily used in support of the arc jet facility.

Outdoor Aerodynamic Research Facility, N-249

Originally built in 1969 and upgraded in 1994, the Outdoor Aerodynamic Research Facility is currently mothballed. It was used for static testing of V/STOL models and rotary wing models, for acoustic testing, and for the analysis of aircraft models prior to testing in the 40- by 80-foot or 80- by 120-foot wind tunnels.

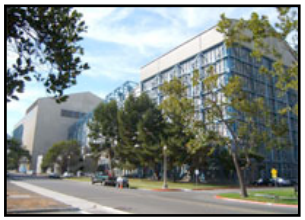
The Outdoor Aerodynamic Research Facility consists of an open-air test facility with a model mounting test pad, data acquisition equipment, control room, and other necessary support equipment for remote model or aircraft operation.

12-foot Pressure Wind Tunnel, N-206 and N-206A

Restored in 1994, the tunnel was the only large-scale, pressurized, low turbulence, subsonic wind tunnel in the United States. It provided unique high–Reynolds number testing capabilities for the development of high-lift systems on commercial transport and military aircraft, and for high angle-of-attack testing of maneuvering aircraft. This facility was closed in 2003 due to budgetary constraints.

Balance Calibration Laboratory, N-207

Operations at the lab include calibrating balances for the ARC Wind Tunnels, as well as for outside projects. ARC recently finished modifications on the Automated Balance Calibration Machine. The lab's current inventory of machine-to-balance adapters can accommodate 6.4- to 10-centimeter (2.5- to 4-inch) balances. Work is currently in progress to accommodate single-piece balance configurations, as well as smaller TASK balances. The machine is a unique tool-in-wind tunnel balance calibration technology. It can generate simultaneous combinations of three forces and three moments within its load envelope. Without the physical limitations of dead-weight manual loading, the Automated Balance Calibration Machine can be used to bring calibration load schedules closer to real tunnel load conditions, thus increasing the accuracy of the calibration. This facility is closed.



H National Full-Scale Aerodynamic Complex, N-221 and N-221B

The National Full-Scale Aerodynamics Complex (NFAC) is the largest wind tunnel complex in the world and consists of the 40- by 80-foot Wind Tunnel, 80- by 120-foot Wind Tunnel, and Outdoor Aerodynamic Research Facility. The National Full-Scale Aerodynamics Complex was primarily used to determine the low- and medium-speed aerodynamic characteristics of high-performance aircraft, rotorcraft, and fixed wing, powered-lift V/STOL aircraft. Operated and used by NASA, the National Full-Scale Aerodynamics Complex was also used by industry, the Department of Defense, and other government agencies. The NFAC is currently mothballed. The 40- by 80-foot wind tunnel has been entered into the National Register. This facility is currently under lease to Arnold Air Force Base.

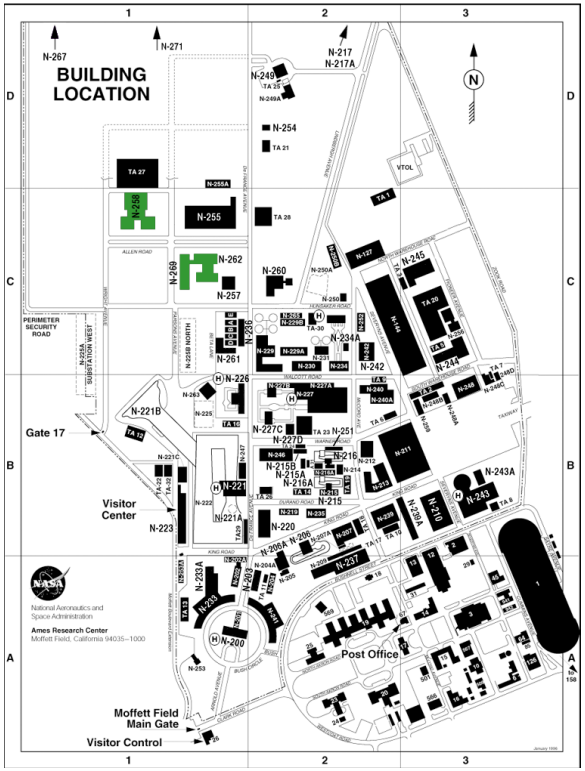
H Unitary Plan Wind Tunnel, N-227 and N-227A-D

The Unitary Plan Wind Tunnel facility is the most heavily used wind tunnel in all of NASA. Every major commercial transport and almost every fighter built in the United States over the last 50 years has been tested in this tunnel. In addition, models of the space shuttle and of the Mercury, Gemini, and Apollo capsules were tested here. More than 1,000 test programs have been conducted in these tunnels, totaling approximately 60,000 hours of operation.

This facility is a unique system of wind tunnels comprised of three test sections: the 11- by 11-foot Transonic Wind Tunnel, the 9- by 7-foot Supersonic Wind Tunnel, and the 8- by 7-foot Supersonic Wind Tunnel. Subsonic, transonic, and supersonic aerodynamics research is performed at this facility. The major common element of the tunnel complex is its electric power plant, which consists of four interconnected motors capable of producing a total of 134-megawatt (180,000-horsepower) continuously or 161-megawatt (216,000-horsepower) for 1 hour.

The wind tunnel represents a unique national asset of vital importance to the nation's defense and its competitive position in the world aerospace market. In 1985, the Unitary Plan Wind Tunnel facility was designated as a National Historic Landmark by the National Park Service because of "its significant associations with the development of the American Space Program." The unitary has undergone major modernization, including automatic controls, a new data system, and other improvements to increase productivity.

Facilities in Code T: Office of the Director of Information Sciences and Technology



Numerical Aerodynamic Simulation Facility, N-258

Since 1984, the Numerical Aerodynamic Simulation Facility has provided innovative supercomputing technology solutions and services for aeronautics scientists and engineers at NASA, universities, and in industry. The Numerical Aerodynamic Simulation Facility plays a major role in NASA programs dedicated to researching, developing, and transferring IT to support NASA's missions.

This facility houses a vast array of unique supercomputing resources that are constantly being updated and augmented. These computers are used on a nationwide timesharing basis to perform calculation-intensive programs for simulation of aerodynamic flows, chemical reactions, and atmospheric physics.

Human Performance Research Laboratory, N-262

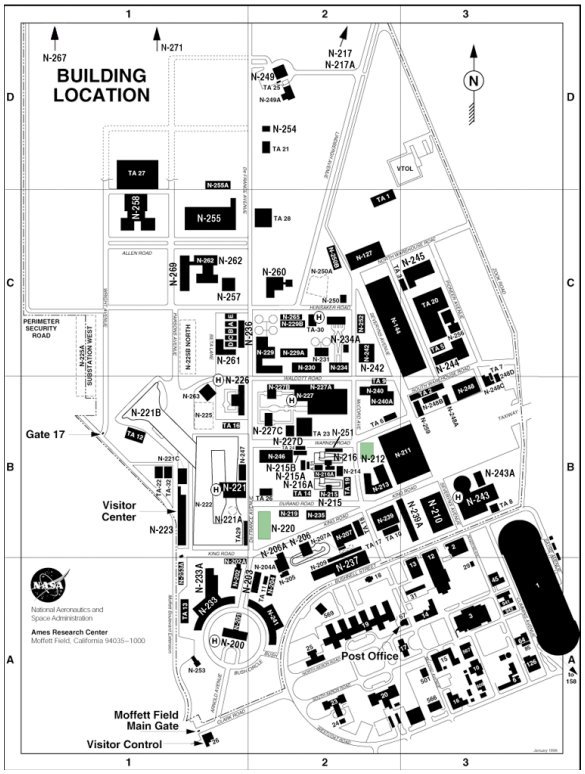
Research at the Human Performance Research Laboratory focuses on human performance and automation in aerospace systems. Areas of study include human vision, audition, attention, motor control, fatigue, human factors maintenance, communication, team problem-solving, training, human workload, control theory, virtual reality, and virtual environments. Areas of development include: (1) computational models of human perceptual, cognitive, and decision systems; (2) perceptual optimization of visual displays and imaging systems; (3) three-dimensional auditory displays; (4) machine vision algorithms for autonomous vehicle control; (5) advanced human-centered IT; and (6) human factors expertise to address high-priority aerospace challenges.

Automation Sciences Research Facility, N-269

The Automation Sciences Research Facility provides an integrated environment for investigating the interaction between humans and highly automated systems. Within the Automation Sciences Research Facility, the neuro-engineering library is used to support intelligent flight control (neural networks applied to flight systems). The DARWIN testbed connects the wind tunnels with the aircraft manufacturers for better design and testing control and result dissemination. The intelligent mechanism lab has been the site of several field missions demonstrating remote/telecontrol and presence. The photonics lab supports the study of bacteriorhodopsin for optical processing.

N-269 also houses the Future Flight Central facility, administered by Code A. The Future Flight Central facility provides a 360-degree view/simulation of an air traffic control tower. Examples of current projects at this facility include: (1) implementation of terrain mapping visualization systems for remotely operated vehicles; (2) acquisition, processing, and visualization of acoustic data in wind tunnel tests; and (3) investigation of bacteriorhodopsin (an experimental protein) as an optical processing and sensing medium.

Facilities in Code P: Office of the Director of Program and Project Development



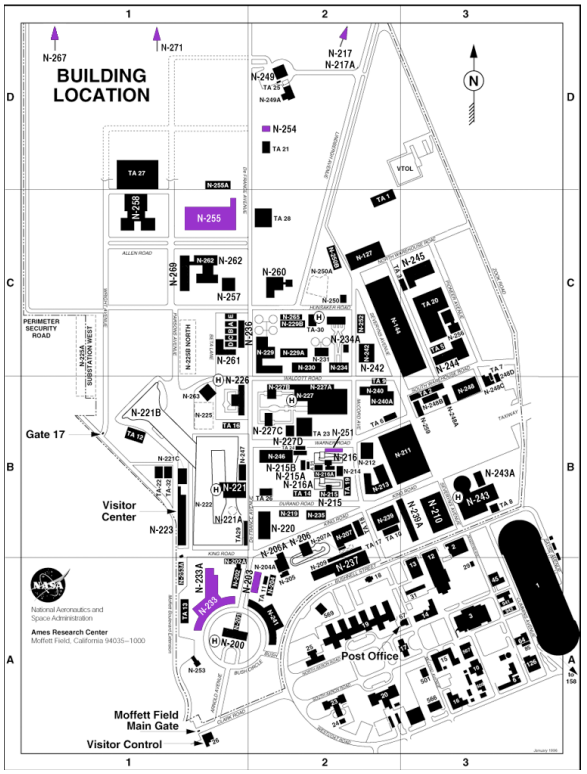
Technical Services, N-220

The Development Machining and Electromechanical Instrumentation Branch, in Building N-220, is a branch of the Aeronautics and Space Flight Hardware Development Division. Machining, instrumentation, mechanical inspection, electronic, and CAD/CAM services occur at this facility. This facility primarily develops prototype hardware for the ARC Research Community. That hardware includes experimental scientific apparatus for shuttle or airborne missions, aerospace wind tunnel models, facility modifications, and biosensors. The personnel at this facility consist of highly skilled engineering technicians that assist with designs and perform all fabrication on very complex scientific instruments and models.

Model Development, Advanced Composites Group, N-212

This facility houses the Advanced Composites Group. The Advanced Composites Group is a technical support group for all research disciplines at ARC. Its capabilities include composite fabrication, plastic fabrication, and other non-metallic fabrication processes. The Advanced Composites Group contributes to the design and manufacturing of a wide variety of test equipment and models. The Advanced Composites Group's expertise with many materials and processes has made this facility vital to the success of many high-profile projects at ARC. This facility contains spray booths for finish applications, autoclaves for composite fabrication, and many machine tools.

Facilities in Code J: Office of the Director of Center Operations



Imaging Technology Laboratory, N-203

This facility contained offices and laboratories for the processing of color (AR-5) and black and white aerial film for the Airborne Remote Sensing Research Program. Four persons operate and maintain the 1811 and 11CM

Versamat film processors located on the second floor, and the effluent treatment plant located in the basement. Photo processing no longer takes places within this facility. Facility currently houses administrative support staff for center.

Magnetic Standards Laboratory and Test Facility, N-217 and N-217A

Two magnetic test facilities are located at ARC in buildings N-217 and N-217A. They were used infrequently during the late 1990s and were being considered for closure in 2000 The 3.7 meter (12 foot) facility located in building N-217 is designed to calibrate magnetic sensor systems, determine magnetic cleanliness, and measure low-frequency electromagnetic radiation of items not exceeding 1 meter (3.3 feet) in any dimension. The 6-meter (20-foot) coil facility, located in N-217A, was built to accommodate testing of items that are too large for the 3.7-meter (12-foot) facility. In addition to the capabilities of the 3.7-meter (12-foot) facility, the 6-meter (20-foot) facility can duplicate the strength and direction of the earth's magnetic field anywhere on earth, in earth orbit, or in deep space. The ambient field in the working area of the coils can be canceled to permit engineering or biological studies in near-zero field. Noninvasive measurements of the magnetic field produced by the human heart, for example, were performed in this facility. This facility has measurement sensitivities of less than 1 microgauss.

Central Computer Facility, N-233 and N-233A

The Central Computer Facility houses the computer and networking systems that provide the basic IT infrastructure for the day-to-day operation of ARC. Included in this suite of systems are a large number of UNIX–based servers that provide the center's email and messaging services, the internal (intranet) web sites, and external web sites used for outreach to the public. This facility also houses the Network Operations Center from which the center's ARCLAN campus network is managed and operated, along with its related server systems and user help desk. The Central Computer Facility also houses ARC's business data processing and database systems, which support personnel and financial resource management functions throughout the center. The N-233A wing of this facility houses an archival data storage system used by the Numerical Aerospace Simulation Supercomputer Facility (located in N-258). This storage system utilizes robotic magnetic tape storage "silos" to provide very high-capacity file storage for their R&D users. This storage system is linked to the N-258 supercomputers via a high speed fiber optic communications system. In addition, N-233A also houses an IT systems development and integration laboratory supporting the activities of the Central Computer Facility (Code JT) and the Code I advanced computer networking projects.

Motor Pool, N-251

The Motor Pool contains facilities for the management of ARC's transportation needs. It includes a fuel station, offices, equipment repair bays, vehicle wash area, and parking areas for conducting the operation, maintenance, and repair of the diverse vehicular fleet.

Telecommunications Facility N-254

This facility houses office space and telecommunications equipment. It originally had an area of 7, 967 square feet. A 2,000–square foot addition was constructed in 2003.

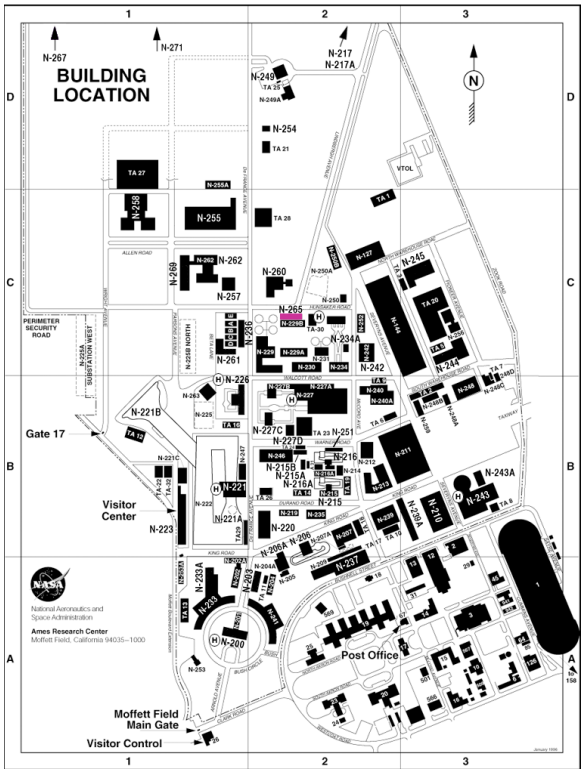
Facility Supply Support Center N-255

This 81,639–square foot building houses the postal and supplies operations for Ames Research Center.

Disaster Area Relief Team, N-267

This 6,367–square foot building houses the Disaster Area Relief Team (DART) facilities. Training and exercise drills are conducted at this facility.

Facilities in Code Q: Office of the Director of Safety, Environmental, and Mission Assurance



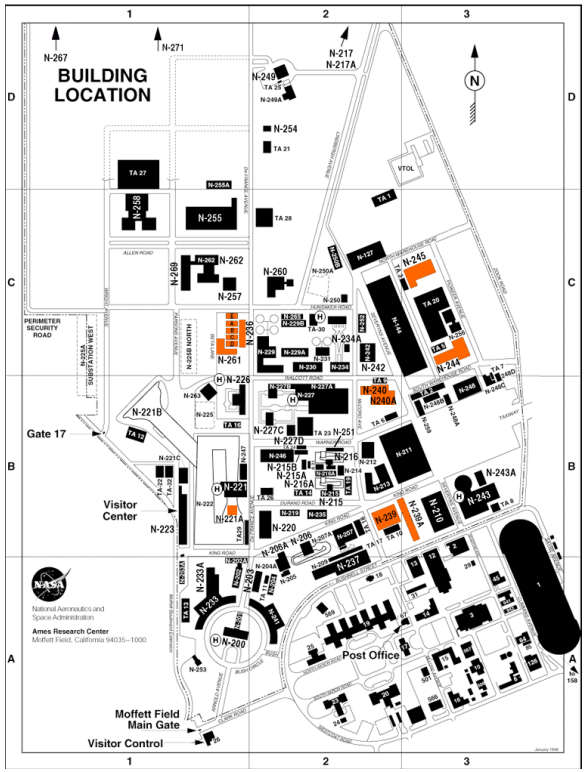
Hazardous Substances Transfer Site, N-265

This facility serves as an accumulation and packaging area for hazardous wastes generated at various locations throughout the center. Hazardous wastes are accumulated and packaged in areas segregated by hazard class and type.

Industrial Wastewater Treatment Facility, N-271

The Industrial Wastewater Treatment Facility (IWWTF) was recently constructed to remove metals and dissolved solids from industrial wastewater and from groundwater, enabling treated effluent to be used as makeup water in the boiler for the Arc Jet Facility and in the Unitary Plan Wind Tunnel cooling tower. Treatment and reuse of ARC's industrial wastewater, and use of treated groundwater, lessen the demand for SFWD potable supply, as well as substantially decreasing discharges to the Palo Alto Regional Water Quality Control Plant and Stevens Creek.

Facilities in Code S: Office of the Director of Astrobiology and Space Research



20-G Centrifuge, N-221A

The 20-G Centrifuge is 17.7 meters (58 feet) in diameter and can be used to evaluate flight hardware as well as to test the effects of hyper-gravity on humans, other animals, and plants.

Mounted on the centrifuge are three enclosed cabs. Cab A, mounted at one end of the rotating arm, contains a modified jet fighter ejection seat in which a human volunteer sits during tests. Cab B, at the other end of the rotating arm, contains a swing frame often used for non-human subjects or can be configured to meet an investigator's needs. Cab C, located near the center of the arm (the center of rotation), can also be adapted to an investigator's needs or can be used either as a near-center control for angular velocity or to study the effects of gravity gradients. The 20-G Centrifuge is capable of producing forces up to 20 times that of terrestrial gravity. During centrifuge operations, a combination of 47 control and 56 instrumentation slip rings allows control of onboard experiments from the control room and communication between control room operators and onboard subjects. The centrifuge speed is computer-controlled, allowing for the development of preprogrammed gravity profiles. A programmable logic controller monitors all critical mechanical and electrical systems to ensure that the systems are within design specification limits.

Biosciences Laboratory, N-236 and N-236A-E

The Biosciences Laboratory is used for biomedical research and animal care.

Life Sciences Research Laboratory, N-239 and N-239A

The Life Sciences Research Laboratory contains the human environmental test facility and environmental chamber. Research conducted at this facility includes, biomedical, extraterrestrial research, ecosystem science, closed ecological life-support systems (CELSS), nanotechnology research, and search for extraterrestrial intelligence (SETI). Some laboratories in this facility are operated by Code A personnel.

Airborne Missions and Applications Laboratory, N-240 and N-240A

The Airborne Missions and Applications Laboratory is occupied by the Life Sciences Division offices, the C-130 Data Facility, and the wet chemistry lab. This facility contains offices and laboratories supporting the NASA Space Station Biological Research Payload Office, which performs planning, testing, and hardware integration for life sciences payloads. Biology laboratories and a high-bay test area are used for experiment verification tests in which payload experiments are performed by the experiment science teams and space lab crew using flight hardware, ground operations procedures, and space-lab crew procedures. Flight hardware is prepared and shipped from this site to Kennedy Space Center. The wet chemistry laboratory houses a wide variety of testing equipment for environmental testing. The wet chemistry laboratory is equipped with thermograin metric analysis and digital scanning calorimetry capabilities for materials characterization. Projects of interest that have been conducted by the materials group in the area of wet chemistry include hygrothermal analysis of composite specimens and exposure testing of aluminum.

Vestibular Research Facility, N-242

The Vestibular Research Facility contains state-of-the-art equipment for ground-based studies of vestibular function (which affects one's sense of balance). This facility hardware enables the study of responses to smooth, linear motion, or to combinations of linear and angular motion over the frequency range of natural head movement.

The Vestibular Research Facility permits the study of how complex linear and/or rotational accelerations are transduced, encoded by the vestibular system, and processed by the brain. Interactions between linear and angular vestibular stimuli, and visual and proprioceptive inputs (peripheral, central, and motor), are examined using electrophysiological, reflexive, and behavioral methods.

Space Projects Facility N-244

The Space Projects Facility contains the offices and laboratories for developing and managing space

projects. It includes facilities for conducting mission operations and laboratories for developing infrared detectors, cryogenics, control systems, communication systems, data systems, and other support systems and experiments for space projects. It also includes a clean room facility and an environmental test laboratory.

Space Sciences Research Laboratory, N-245

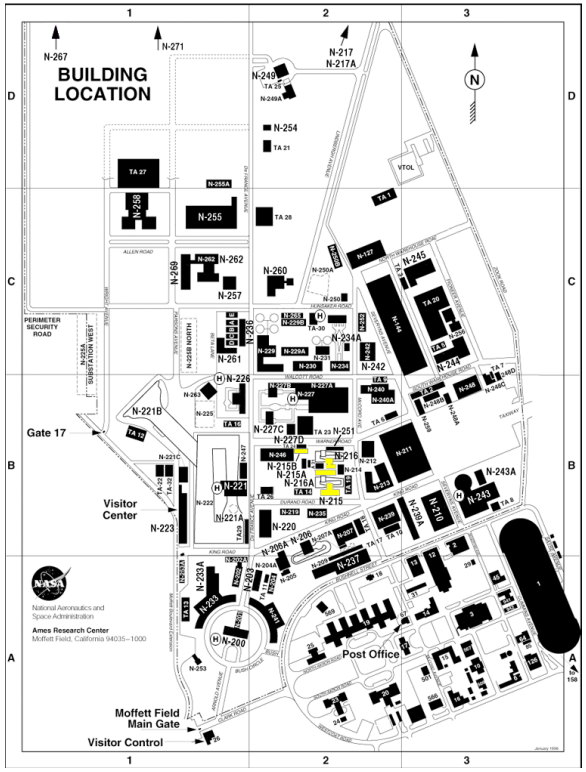
The Space Sciences Research Laboratory is dedicated to research in astrophysics, exobiology, and planetary science. These research programs are structured around the study of origins and evolution of stars, planets, planetary atmospheres, and biological organisms.

The Space Science Division's programs include: (1) the study of interstellar gas and dust that form the raw material for stars, planets, and life, (2) the processes of star and planet formation, (3) the search for planetary systems around other stars, (4) the evolution of planets and their atmospheres, (5) the structure, dynamics, and chemistry of planetary atmospheres, (6) the origin of the biogenic elements and molecules and their distribution in space, (7) the origin of life and its early evolution on Earth, and (8) the search for past or present life throughout the solar system.

Biomedical Research Facility, N-261

The Biomedical Research Facility is utilized for neuroscience research. This facility contains a darkroom, electron microscopy facilities, computer areas, testing booths, and surgery facilities.

Facilities in Code Y: Aeroflight Dynamics Directorate, U.S. Army Aviation and Missile Command



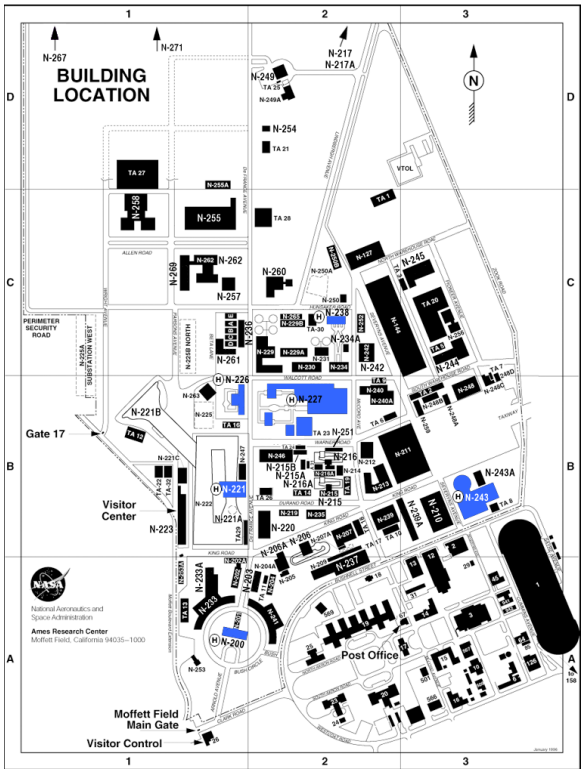
Army Aeromechanics Lab and 7 x 10 foot Wind Tunnels 1 and 2, N-215 and N-216

The tunnels are closed circuit, low speed, and pressurized to 1 atmosphere. Tunnel No. 1 is used for research in support of low-speed aerodynamics, using small-scale aircraft, V/STOL aircraft, and space vehicle reentry body models. Wind speeds within the tunnel are continuously variable up to 402.5 kilometers per hour (250 miles per hour). Currently not in use.

Model Preparation Area, N-216A and B

This area is a shop used in the development of models to be run in the 7- by 10-foot Wind Tunnel and the development of parts for the tunnel.

Additional Historic Properties



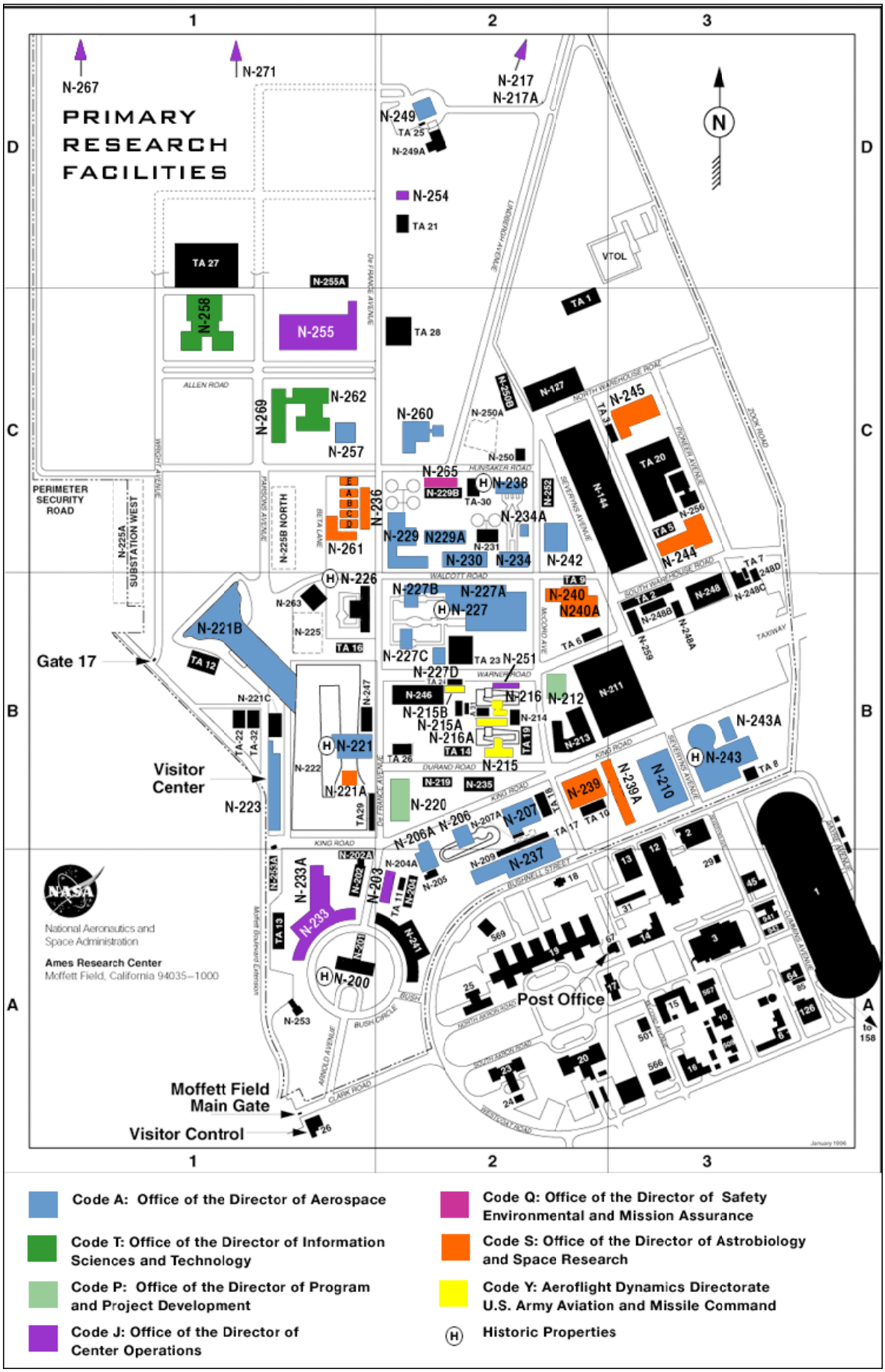
Buildings N-226 and N-200 have been reviewed for historic merit and are believed to be eligible for nomination to the National Register of Historic Places.

H 6 x 6 Foot Supersonic Wind Tunnel, N-226

Building N-226, which houses the 6x6 ft Supersonic Wind Tunnel, is significant at the national level under Criterion 1 (Events) for its direct association with supersonic flight research and for its use as a supersonic wind tunnel testing facility (1948 – 1988). Additionally, this building is significant under Criterion 3 (Design/Construction) as an exceptional engineering accomplishment in the context of wind tunnel construction. Building N-226 played a crucial role in the discovery of supersonic flight research, which subsequently led to improved designs of supersonic aircrafts and missiles. Although the building has been altered in its interior, these alterations do not affect the building's integrity. Thus, this building possesses integrity of location, design, setting, materials, workmanship, feeling, and association.

H Administration Building, N-200

Building N-200 was one of the earliest buildings on the NASA Ames Research campus. It was designed under the direction of Smith de France, the Ames Research Center's first director, and became the main administration building. It is significant at the national level under National Register Criterion A & B (California Register Criterion 1 & 2) for its use as the Ames Aeronautical Laboratory Administration Building (1942 – 1958) and later as the Ames Research Center Administration Building (1959 – Present). It was originally constructed to house all administrative and office activities at the center, including the offices of the Director and Assistant Director, Center Management offices, Personnel, Procurement, and Central Files. Additionally, the building was the original home to several research divisions, the library, and cafeteria. This building is significant in the areas of space exploration and settlement (1943 – Present) and in the areas of science and invention. Additionally, the building is significant for its association with Smith DeFrance, H. Julian Allen, John F. Parsons, and Harry J. Goett. Although the interior has been largely altered and there have been several exterior renovations (such as the addition of an elevation tower and canopy), Building N-200 still retains those qualities, which convey its historical significance. This building possesses integrity of location, design, setting, materials, workmanship, feeling, and association.


PRIMARY RESEARCH FACILITIES
N-267
N-271
N-217
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TA 25
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TA 27
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ALLEN ROAD
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N-269
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PERIMETER SECURITY ROAD
N-225A SUBSTATION WEST
N-225B NORTH
N-226
N-263
N-225
N-221B
Gate 17
TA 12
TA 16
N-227B
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N-227D
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N-211
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N-240
N240A
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VTOL
TA 1
N-221C
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TA-32
N-247
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TA 26
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Visitor Center
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N-243A
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TA 17
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N-233A
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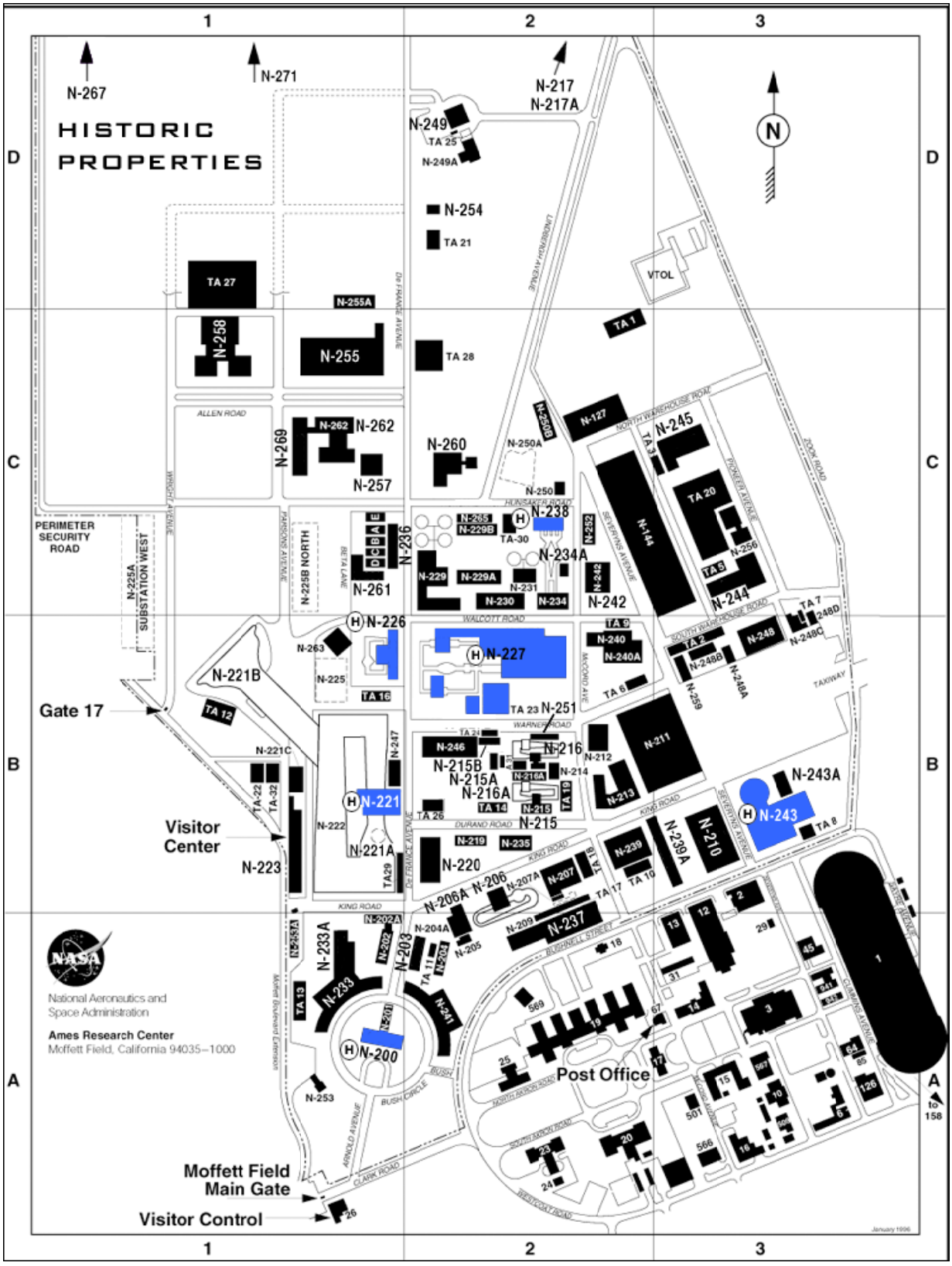
BUSH CIRCLE
Post Office
Moffett Field Main Gate
Visitor Control
National Aeronautics and Space Administration
Ames Research Center
Moffett Field, California 94035–1000
January 1996
Code A: Office of the Director of Aerospace
Code T: Office of the Director of Information Sciences and Technology
Code P: Office of the Director of Program and Project Development
Code J: Office of the Director of Center Operations
Code Q: Office of the Director of Safety Environmental and Mission Assurance
Code S: Office of the Director of Astrobiology and Space Research
Code Y: Aeroflight Dynamics Directorate U.S. Army Aviation and Missile Command
Historic Properties


HISTORIC PROPERTIES
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ALLEN ROAD
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PERIMETER SECURITY ROAD
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N-253
Post Office
Moffett Field Main Gate
Visitor Control
National Aeronautics and Space Administration
Ames Research Center
Moffett Field, California 94035–1000
1
2
3
A
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C
D

Building Key

Alphabetical by Status and Organization Code

Historic Properties

6 x 6 foot Supersonic Wind Tunnel, N-226 (B-1)
Administration Building, N-200 (A-1)
Arc Jet Complex, N-238 (C-2)
Flight and Guidance Simulation Laboratory, N-243 (B-3)
National Full-Scale Aerodynamic Complex, N-221 and N-221B (B-1)
Unitary Plan Wind Tunnel, N-227 and N-227A-D (B-2)

Code A: Office of the Director of Aerospace

12-foot Pressure Wind Tunnel, N-206 and N-206A (B-2)
3.5-foot Hypersonic Wind Tunnel Auxiliaries, N-229A (C-2)
Arc Jet Complex, N-238, N234, and N-234A (C-2)
Balance Calibration Laboratory, N-207 (B-2)
Crew-Vehicle Systems Research Facility, N-257 (C-1)
Electric Arc Shock Tube East, N-229 (C-2)
Flight and Guidance Simulation Laboratory, N-243 and N-243A (B-3)
Flight Systems Research Laboratory, N-210 (B-3)
Fluid Mechanics Laboratory, N-260 (C-2)
Hypervelocity Free-Flight Facility, N-237 (A-2)
Mars Unit, N-242 (C-2)
National Full-Scale Aerodynamic Complex, N-221 and N-221B (B-1)
Outdoor Aerodynamic Research Facility, N-249, (D-2)
Physical Sciences Research Laboratory, N-230 (C-2)
Research Facility, N-223 (B-1)
Space Technology Facility, N-204A (A-1)
Unitary Plan Wind Tunnel, N-227 and N-227A-D (B-2)

Code T: Office of the Director of Information Sciences and Technology

Automation Sciences Research Facility, N-269 (C-1)
Human Performance Research Laboratory, N-262 (C-1)
Numerical Aerodynamic Simulation Facility, N-258 (C-1)

Code P: Office of the Director of Program and Project Development

Model Development, Advanced Composites Group, N-212 (B-2)
Technical Services Facility, N-220 (B-2)

Code J: Office of the Director of Center Operations

Central Computer Facility, N-233 and N-233A (A-1)
Disaster Area Relief Team, N-267, (D-1)
Facility Supply Support Center, N-255 (C-1)
Imaging Technology Laboratory, N-203 (A-2)
Magnetic Standards Laboratory and Test Facility, N-217 and N-217A, (D-2)
Motor Pool, N-251 (B-2)
Telecommunications Facility, N-254, (D-2)

Code Q: Office of the Director of Safety, Environmental, and Mission Assurance

Hazardous Substances Transfer Site, N-265 (C-2)
Industrial Wastewater Treatment Facility, N-271 (C-1)

Code S: Office of the Director of Astrobiology and Space Research

20-G Centrifuge Facility, N-221A (B-1)
Airborne Missions and Applications Laboratory, N-240 and N-240A (B-2)
Biomedical Research Facility, N-261 (C-1)
Biosciences Laboratory, N-236 and N-236A-E (C-1)
Life Sciences Research Laboratory, N-239 and N-239A (B-2) (B-3)
Space Projects Facility, N-244 (C-3)
Space Sciences Research Laboratory, N-245 (C-3)
Vestibular Research Facility, N-242 (C-2)

Code Y: Aeroflight Dynamics Directorate, U.S. Army Aviation and Missile Command

Army Aeromechanics Lab and 7 x 10 foot Wind Tunnels 1 and 2, N-215 and N-216 (B-2)
Model Preparation Area, N-216A and N-216B (B-2)

Building Key

NUMERICAL BY BUILDING NUMBER

N-200, Administration Building, (A-1)
N-203, Imaging Technology Laboratory, (A-2)
N-204A , Space Technology Facility, (A-1)
N-206 and N-206A, 12-foot Pressure Wind Tunnel, (B-2)
N-207, Balance Calibration Laboratory, (B-2)
N-210, Flight Systems Research Laboratory, (B-3)
N-212, Model Development, Advanced Composites Group, (B-2)
N-215 and N-216, Army Aeromechanics Lab and 7 x 10 foot Wind Tunnels 1 and 2, (B-2)
N-216A and N-216B, Model Preparation Area, (B-2)
N-217 and N-217A, Magnetic Standards Laboratory and Test Facility, (D-2)
N-220, Technical Services Facility, (B-2)
N-221 and N-221B, National Full-Scale Aerodynamic Complex, (B-1)
N-221A, 20-G Centrifuge Facility, (B-1)
N-223, Research Facility, (B-1)
N-226, 6 x 6 foot Supersonic Wind Tunnel, (B-1)
N-227 and N-227A-D, Unitary Plan Wind Tunnel, (B-2)
N-229, Electric Arc Shock Tube East, (C-2)
N-229A, 3.5-foot Hypersonic Wind Tunnel Auxiliaries, (C-2)
N-230, Physical Sciences Research Laboratory, (C-2)
N-233 and N-233A, Central Computer Facility, (A-1)
N-236 and N-236A-E, Biosciences Laboratory, (C-1)
N-237, Hypervelocity Free-Flight Facility, (A-2)
N-238, N234, and N-234A, Arc Jet Complex, (C-2)
N-239 and N-239A, Life Sciences Research Laboratory, (B-2), (B-3)
N-240 and N-240A, Airborne Missions and Applications Laboratory, (B-2)
N-242, Mars Unit, (C-2)
N-242, Vestibular Research Facility, (C-2)
N-243 and N-243A, Flight and Guidance Simulation Laboratory, (B-3)
N-244, Space Projects Facility, (C-3)
N-245, Space Sciences Research Laboratory, (C-3)
N-249, Outdoor Aerodynamic Research Facility, (D-2)
N-251, Motor Pool, (B-2)
N-254, Telecommunications Facility, (D-2)
N-255, Facility Supply Support Center, (C-1)
N-257 , Crew-Vehicle Systems Research Facility, (C-1)
N-258, Numerical Aerodynamic Simulation Facility, (C-1)
N-260, Fluid Mechanics Laboratory, (C-2)
N-261, Biomedical Research Facility, (C-1)
N-262, Human Performance Research Laboratory, (C-1)
N-265, Hazardous Substances Transfer Site, (C-2)
N-267 , Disaster Area Relief Team, (D-1)
N-269, Automation Sciences Research Facility, (C-1)
N-271, Industrial Wastewater Treatment Facility, (C-1)